Shuohao Gao

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20 | Male

EDUCATION

Harbin Institute of Technology, Shen Zhen Sep 2020 - Jun 2024

Computer science and technology

- **Average score: 95.782; Ranking 1/530 (0.19%)**
- English level: CET-4 600 points; CET-6 471 points.

HONORS & AWARDS

National Scholarship	2020-2021
The First Prize Scholarship (5%)	2020-2022
ICPC Regional Contest Bronze Medal (Hang Zhou)	2022
National Second Prize of Bridge Cup Program Design Contest	2023
Individual Second Prize of Group Programming Ladder Tournament of Final	2023

RESEARCH & PROJECTS

Research experience:Cohesive Subgraph Search in Directed Graphs Oct 2022 - Present

With Dr. Shengxin Liu, I proposed a new cohesive subgraph model in directed graphs, and correspondingly desgined a heuristic method and a branch-and-bound-based exact algorithm. Experimental studies show that our heuristic method can directly return the optimal solution in 90% cases, and both proposed heuristic method and exact algorithm are normally four orders of manitude faster than the baseline algorithm (the brute-force algorithm).

This project has been written as a research paper which will be submitted soon.

Software Development - Campus Forum APP

Based on the needs of campus life, an APP with BBS forum function and second-hand goods trading function was developed on the Android terminal. In this project, as the person in charge, I coordinated the other four teammates. I was responsible for the Android front UI and Android local storage, and designed the framework of secure transactions.
The project received unanimous praise from the judges and still has hundreds of active users today.

Software development - online version of the two-player battle game Jun 2022

This project is an online version of the plane war game on Android, which has the functions of single-machine AI with three kinds of difficulties and two-player online battle, and has a variety of gameplay such as sound effects and props.I was responsible for the whole development, using UML to design. It is relate to comprehensive use of design pattern, java programming, Android development, socket communication, DBMS operation and multi-threading knowledge.
The project received full marks in the course Object-Oriented Software Construction Practices.

In-class Practice - CPU Design of five-stage pipeline Jul 2022

Based on RISCV instruction set, the five-level pipelined CPU is developed independently using verilog hardware language. The CPU can support simple branch prediction and has high performance. The final clock frequency is up to 100MHz, far higher than the pass line 50MHz, and it has passed the trace simulation comparison and the practice test of hardware.

This project got full marks in the course Computer Design and Practice.

In-class practice - EXT32 Filesystem Based on FUSE Nov 2022

Based on the callback interface provided by the FUSE architecture, I designed my own file system with a structure of superblocks, index bitmaps, data bitmaps, inodes, and data blocks. Among them, the index adopts hybrid index, which can support the maximum size of 4GB files. The file system can be mounted in the linux system to realize the function of creating, deleting, and reading and writing files.
This project got full marks in the experimental course of Operating System.

SUMMARY

With excellent academic performance and rich experience in ACM algorithm competition, I have a good foundation for scientific research projects and am willing to devote myself to scientific research.

I can accept direct PHD if I encounter an interested topic.